GeoTechnologies, Inc.
Geotechnical and Construction Materials Testing Services

October 11, 2007

Department of Engineering
City of Rocky Mount, NC
P O. Box 1180
Rocky Mount, NC 27802

Attention: Mr William Kerr, P.E.
Director of Engineering

Reference: Pavement Evaluation – Various Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Dear Sir·

GeoTechnologies has performed the authorized evaluation of ten (10) streets in Rocky Mount, North Carolina. The purpose of the evaluation was to determine the thickness of the existing pavement components, measure in-place CBR values of the subgrade soils, and identify subgrade conditions that may present problems for proposed stabilization of the existing pavement structure. The purpose of this report is to present the findings of our evaluation and to make recommendations regarding alternatives for repair of the streets.

The streets included in this study include the following sections.

1. Dana Lane – Wellington Drive to Berkley Drive
2. Davis Street – Nashville Road to Craig Street
3 South Englewood Drive – Hawthorne Road to Winstead Road
4. Fenner Road – North Wesleyan Boulevard to Jeffrey's Road
5 South Grace Street – Paul Street to Center Street
6. Nicodemus Mile - Brinker Drive to Hunter Hill Road
7. Southern Boulevard – Country Club Drive to Wimberley Drive
8. Starling Way – Raleigh Road to Canary Drive
9 Stokes Street – Raleigh Street to King Circle
10. Wellington Drive – Avondale Avenue to Old Mill Road

All field work was completed by Mr David Harris or GeoTechnologies. Results of observations and tests for each street are discussed separately in this report.

PAVEMENT CONDITIONS

Dana Lane

Dana Lane is 2123 feet in length. There is no curb and gutter on the street. The street exhibits alligator cracking and rutting as the primary forms of distress. Six (6) test borings were made on the street. Thickness of the asphalt pavement ranged from 1.3 to 2.5 inches with an average depth of 1.6 inches. The asphalt consists of a fine graded surface mix. Thickness of the aggregate base course stone ranged from 3.9 to 6.25 inches with an average depth of 5.2 inches. The subgrade soils consist of medium to fine sandy clay (CL), silty clay (CH), clayey silt (CL-ML), and silty and clayey sands (SM/SC). The soils at borings 1 through 3 were slightly wet of optimum moisture content while soils at borings 4 though 6 were at or below optimum moisture content. Subgrade CBR values ranged from 4 to 10 percent with boring 4 exhibiting a subgrade CBR value of 34 percent. The PCI listed for Dana Lane is 21. There are sections where this relatively low value is reflected by the pavement conditions; however, there are also sections which would likely be rated higher than 21

Davis Street

Davis Street is 1043 feet in length and has curb and gutter on both sides of the street. The street exhibits alligator cracking and shrinkage cracking as the primary forms of distress. Three (3) test borings were made on the street. Thickness of the asphalt pavement ranged from 3.75 to 3.80 inches with an average depth of 3.80 inches. The asphalt consists of a fine graded surface mix placed in two lifts. The base course material consists of a soil type base course (STBC). Thickness of the STBC ranged from 4.25 to 5.28 inches with an average depth of 4.88 inches. The subgrade soils consist of fine sandy clay (CL) in the section between Nashville Road and Anderson Street (Boring 1) and clayey coarse to fine sands (SC) between Anderson Street and Craig Street. Subgrade CBR values ranged from 6 to 18 percent. The subgrade soils at borings 1 and 3 were wet of optimum moisture content. The PCI listed for Davis Street ranged from 54 to 55 and appears to be accurate based on our visual inspection of the pavements.

South Englewood Drive

The section of South Englewood Drive included in this study is between Hawthorne Road and Winstead Road with a length of 381 feet. There is curb and gutter on both sides of the street. The street exhibits alligator cracking and shrinkage cracking as the primary forms of distress in the west half of the street while distress in the east half is generally shrinkage cracking. The majority of the major distress is confined to the west half of the street. Two (2) test borings were made on the street. Thickness of the asphalt pavement ranged from 2.75 to 3 inches with an average depth of 2.88 inches. The asphalt consists of a fine graded surface mix. The base material consists of crushed aggregate base course. Thickness of the aggregate base course stone ranged from 6.5 to 6.75 inches with an average depth of 6.62 inches. The subgrade soils consist of medium to fine sandy clay (CL). Subgrade CBR values ranged from 2.5 to 25 percent with the lowest value in the west side of the street where the majority of the distress exists. The soils on the west half of the street were wet of optimum moisture content while the soils on the east half of the street were dry of optimum moisture content. The PCI for the section of South Englewood included in our evaluation was 67

Fenner Road

The section of Fenner Road included in this study is between North Wesleyan Boulevard and Jeffrey's Road with a length of 2584 feet. There is no curb and gutter on the street. The street exhibits alligator cracking

and rutting, especially in the outer wheel path of both lanes, as the primary forms of distress. Some potholes also exist. The traffic on Fenner Road consists of a significant volume of medium trucks as well as heavy trucks and automobiles. A number of facilities with medium and heavy trucks are located along the road. Seven (7) test borings were made on the road. Thickness of the asphalt pavement ranged from 2.6 to 9 inches. The average depth of the asphalt pavement was 3.55 inches excluding two borings which contained 7.5 and 9 inches of asphalt. The asphalt consists of both binder course and fine graded surface mixes. The base material consists of crushed aggregate base course. Thickness of the aggregate base course stone ranged from 1.5 to 9.25 inches. Two borings with asphalt depths of 7.5 and 9 inches had base course depths of 2.5 and 1.5 inches respectively The average depth of base course stone excluding the two very thin sections was 8.35 inches. The subgrade soils consist of medium to fine sandy clay (CL), silty clay (CH), and silty and clayey sands (SM/SC). Subgrade CBR values ranged from 1 to 7 percent in six of the borings with boring 6 exhibiting a subgrade CBR value of 30 percent. The majority of the soils at subgrade were wet of optimum moisture content particularly at borings 2 and 3 where CBR values were 1 to 2 percent. The PCI for Fenner Road ranged from 62 to 65. This value appears to be reasonable for the portion closest to N. Wesleyan Boulevard. However, the level of rutting and alligator cracking in the portion closer to Jeffrey's Road may indicate a lower value for that section.

Grace Street

The section of Grace Street included in this study is located between Paul Street and Center Street and is 1431 feet in length. There is curb and gutter on both sides of the street. The street exhibits alligator cracking and shrinkage cracking as the primary forms of distress. Four (4) test borings were made on the street. Thickness of the asphalt pavement ranged from 2.6 to 3 75 inches with an average depth of 3.25 inches. The asphalt consists of a fine graded surface mix placed in two lifts. The base course material consists of a soil type base course (STBC). Thickness of the STBC ranged from 4.0 to 6.35 inches with an average depth of 5.4 inches. The subgrade soils consist of medium to fine sandy clay (CL) and clayey sands (SC). Subgrade CBR values ranged from 20 to 30 percent but dropped off significantly below a depth of 15 to 18 inches in borings 1 and 3 The subgrade soils were generally dry of optimum moisture in the upper 6 to 8 inches. The PCI value for Grace Street ranged from 53 to 64 which appear to be reasonable for conditions observed on the street.

Nicodemus Mile

The section of Nicodemus Mile included in this study is between Brinker Drive and Hunter Hill Road with a length of 3497 feet. There is no curb and gutter on the street. The street exhibits alligator cracking and rutting, especially in the outer wheel paths of both lanes, as the primary forms of distress. Some potholes also exist. The traffic on Nicodemus Mile consists of a mixture of heavy and medium trucks, construction vehicles and automobiles. Ten (10) test borings were made on the road. Thickness of the asphalt pavement ranged from 2.25 to 3 inches. The average depth of the asphalt pavement was 2.53 inches. The base material consists of soil type base course. Thickness of the soil type base course ranged from 5.0 to 10.5 inches with an average thickness of 7.13 inches. The subgrade soils consist of medium to fine sandy clay (CL), silty clay (CH), and silty and clayey sands (SM/SC). Subgrade CBR values ranged from 4 to 20 percent with the majority of values ranging from 8 to 12 percent. Subgrade moistures were generally at or below optimum moisture content with the exception of boring 9 where highly plastic clay was encountered at the subgrade elevation. The PCI for Nicodemus Mile ranged from 13 to 37. These values appear to be reasonable based on the amount of rutting and alligator cracking observed on the street.

Southern Boulevard

The section of Southern Boulevard included in this study is located between Wimberly Drive and Country Club Drive and is 448 feet in length. There is no curb and gutter on the street. The street exhibits some alligator cracking and shrinkage cracking as the primary forms of distress. Two (2) test borings were made on the street. Thickness of the asphalt pavement ranged from 1.6 to 2.0 inches with an average depth of 1.8 inches. The base course material consists of a soil type base course (STBC). Thickness of the STBC ranged from 7.0 to 9.4 inches with an average depth of 8.2 inches. The subgrade soils consist of silty medium to fine sand (SM). Subgrade CBR values were 50 percent. The subgrade soils were dry of optimum moisture content at the time of our investigation. The PCI for Southern Boulevard is 56 and is reasonable for the level of distress observed on the street.

Starling Way

The section of Starling Way included in this study is between Raleigh Road and Canary Drive with a length of 929 feet. There is curb and gutter on both sides of the street. The street exhibits alligator cracking and shrinkage cracking as the primary forms of distress. Three (3) test borings were made on the street. Thickness of the asphalt pavement ranged from 2.4 to 3.4 inches with an average depth of 2.93 inches. The asphalt consists of a fine graded surface mix. The base material consists of crushed aggregate base course. Thickness of the aggregate base course stone ranged from 5.75 to 6.0 inches with an average depth of 5.87 inches. The subgrade soils consist of medium to fine sandy clay (CL) that are wet of optimum moisture content. Subgrade CBR values ranged from 2.5 to 7 percent. The PCI for Starling Way is 60 and is reasonable for the distress observed during our site visit.

Stokes Street

The section of Stokes Street included in this study is between Raleigh Street and King Circle with a length of 364 feet. There is curb and gutter on both sides of the street. The street exhibits alligator cracking and shrinkage cracking as the primary forms of distress with some pavement rutting also present near the intersection with Raleigh Street. Traffic on the street consists of a significant number of automobiles as well as heavy and medium weight trucks. Two (2) test borings were made on the street. Thickness of the asphalt pavement ranged from 2.25 to 2.9 inches with an average depth of 2.58 inches. The asphalt consists of a fine graded surface mix. The base material consists of crushed aggregate base course. Thickness of the aggregate base course stone ranged from 7.6 to 8.75 inches with an average depth of 8.18 inches. The subgrade soils consist of silty coarse to fine sand (SM). Subgrade CBR values ranged from 4.5 to 7 percent. The PCI for Stokes Street is 60. This value is reasonable for condition observed on the street.

Wellington Drive

The section of Wellington Drive included in this study is between Avondale Avenue and Old Mill Road with a length of 2702 feet. There is no curb and gutter on the street. The street exhibits some alligator cracking and shrinkage cracking as the primary forms of distress. Eight (8) test borings were made on the street. Thickness of the asphalt pavement ranged from 2.5 to 8.6 inches with an average depth of 2.93 inches. The asphalt consists of a fine graded surface mix with the exception of boring 4 where the asphalt depth of 8.6 inches includes asphalt base mix. The base material consists of crushed aggregate base course. Thickness of the aggregate base course stone ranged from 5.75 to 6.0 inches with an average depth of 5.87 inches. The subgrade

soils consist of medium to fine sandy clay (CL). Subgrade CBR values ranged from 2.5 to 7 percent. The PCI for Wellington Drive ranged from 32 to 69 which are reasonable for the conditions observed on the street.

RECOMMENDATIONS

We understand that the streets that are the subject of this evaluation will likely be stabilized with Portland cement. Several factors which can affect the success of stabilization are the depth and quality of the existing asphalt and base course materials, and the soils which underlie the pavement structure. Small amounts of soil can be mixed with the pulverized asphalt and base materials without harming the integrity of the stabilized material as long as those materials are of very low plasticity Excessive amounts of plastic soils can reduce the strength of the stabilized materials and will increase the susceptibility of the stabilized material to damage from moisture infiltration. There is sufficient asphalt and base material depth on the streets for stabilization without incorporating significant amounts of soil in the stabilized mixture.

Pavement designs were developed using the Wake Forest – AASHTO modified method for design of residential streets. Copies of the design calculations for each street included in this study are attached for your review. Traffic volumes (ADT) were provided by the City of Rocky Mount. A traffic utilization of 4% single frame trucks, 1% multiple frame trucks, and 95 percent automobiles was used for design purposes for Stokes Street, Fenner Road, and Nicodemus Mile. A traffic utilization of 1% single frame trucks, 1% multiple frame trucks, and 98 percent automobiles was used for design purposes for the other streets which experience less heavy truck traffic. A structural coefficient of 0.20 was used for the stabilized base. A structural coefficient of 0.44 was used for the asphalt pavements.

CONSTRUCTION CONSIDERATIONS

Stabilization of asphalt pavements and their bases requires equipment that can adequately pulverize the asphalt pavement and base course material and mix it into a homogenous mixture. Some mixers have a tendency to break up the pavement into 4 to 6 inch pieces which then are pushed to the bottom of the stabilized material layer It is very important that the asphalt pavement be broken up into pieces with a maximum dimension of 3 inches or less and that the asphalt pavement be blended throughout the matrix of finer material. Two or more passes of some mixers are required to adequately break up and mix the pavement and base materials.

Cement spreaders should have skirts around the spreader bar to limit migration of cementitious materials during the spreading operations. Failure to provide this protection will result in cement dust being blown off the roadway and onto adjacent properties.

Cement contents should be kept at 4.5 percent or less if at all possible. The lower the cement content the less potential there is for shrinkage. Cement contents of 3 to 3.5 percent cement by dry weight of base is generally sufficient when stabilizing pavements with crushed aggregate bases. Cement contents of 4 to 5 percent may be necessary to provide sufficient strength in areas with soil type bases. Moisture should be within 2 percent of optimum moisture content and materials should be compacted to not less than 98 percent of the standard Proctor maximum dry density (ASTM D-698/D558).

Compaction and fine grading of stabilized bases must typically be completed within 4 hours of cement addition. Delaying fine grading will likely require a milling machine to cut the stabilized material to design grade. Ideally, paving should follow fine grading within 24 hours unless the stabilized material can be kept

moist or can be sealed with a prime coat. Since the majority of these streets will have to be opened to traffic without much delay, we anticipate that paving would likely follow stabilization in 24 hours or less.

The presence of curb and gutter on six of the streets will present issues that must be addressed with regards to stabilization work. We have assumed a stabilized base depth of 8 inches for the majority of the streets with a minimum asphalt depth of 1.5 to 2 inches. Streets with curb and gutter will lose a portion of the stabilized material in order to make room for the new asphalt pavement. We are making separate recommendations for each street with regards to stabilization depth and pavement thickness.

Dana Lane

The ADT for Dana Lane is 400. The PCI for this street is 21 although this low value does not appear to be entirely indicative of the pavement conditions on the entire street. The depth of the pavement structure ranged from 5.5 inches to 7.5 inches with an average depth of 6.8 inches. The design CBR value is 6 percent. There is no curb and gutter on the street. We are recommending the existing pavement structure be treated to a depth 7.0 inches. The subgrade soils on Dana Lane consist of low to moderately plastic silts and clays as well as some sands. Use of a maximum stabilization depth of 7.0 inches will reduce the amount of soil fines that will be mixed with the stabilized material. We are recommending a pavement depth of 2 inches of S9.5B mix although this thickness can be reduced to 1 75 inches to reflect the actual structural number for the design.

The distress exhibited by the pavements on Dana Lane is likely a combination of age and well as seasonal wetting and drying cycles. We would note that our evaluation was performed during a period of drought and soil moistures are likely higher under more normal conditions. However, the distress would be expected to be much higher based on the soil types if significant changes in moisture content were being experienced.

Davis Street

The ADT for Davis Street is 400. The depth of the pavement structure ranged from 8.0 inches to 9.0 inches with an average depth of 8.7 inches. There is curb and gutter on both sides of the street. The design CBR value is 6 percent. The base course material is a soil type base which is suitable for stabilization. The subgrade soils consist primarily of sands with some moderately plastic clay also present. We are recommending the existing pavement structure be treated to a depth of 8.0 inches. We are recommending a pavement depth of 2 inches of S9.5B mix although design calculations indicate that a 1.5 inch asphalt section will meet the structural requirements for the design.

The presence of curb and gutter will require that a portion of the stabilized material be removed from the street. Once the street has been stabilized, the material would be cut down to permit placement of the design pavement section. The final section pavement will consist of 7 inches of stabilized base material with 1.5 to 2 inches of asphalt surface.

South Englewood Drive

The ADT for South Englewood Drive was not provided but we have estimated it to be approximately 500. The depth of the pavement structure was 9.5 inches. The base course material is a crushed aggregate base course stone. The design CBR value is 5 percent. We are recommending the pavement structure be treated to a depth of 9.0 inches. We are recommending a pavement depth of 2 inches of S9.5B mix.

The presence of curb and gutter will require that a portion of the stabilized material be removed from the street. Once the street has been stabilized, the material would be cut down to permit placement of the design pavement section. The final section pavement will consist of 7 inches of stabilized base material with 2 inches of asphalt surface.

Fenner Road

The ADT for Fenner Road is 1900 The depth of the pavement structure ranged from 10 to 13 inches with and average depth of 11.4 inches. The design CBR value is 4 percent. The base course material is a crushed aggregate base course stone. We are recommending consideration be given to increasing the stabilized base depth to 10.0 inches. Stabilizing 10 inches will result in increased base strength and reduce the required asphalt depth to 3 inches. Utilizing an 8 inch stabilized base depth will require a 4 inch asphalt depth. We are recommending S12.5A or S12.5B mix be used as the pavement.

The shoulder material along portions of Fenner Road is higher than the pavement edge which has caused water to be trapped along the edge of the pavements. The majority of the distress occurs in the outer wheel path of both lanes. We are recommending that drainage along the edge of the new pavements be improved when the road is repaired.

Subgrade conditions on Fenner Road were the poorest of the streets we evaluated. The subgrade moistures were elevated and CBR values reflected the generally poor subgrade conditions. We have recommended a stabilization depth of 8 to 9 inches. This depth will be sufficient to bridge over the majority of weak areas; however, some areas may not become stable even with 9 inches of stabilized base. This should become readily apparent during compaction operations on the stabilized materials. One option for repair of unstable areas would be to remove the treated materials and treat the underlying weak materials with cement. The treated base would then be brought back into the excavation to form the new base.

Grace Street

The ADT for Grace Street is 2100. There is curb and gutter on both sides of the street. The depth of the pavement structure ranged from 7 75 inches to 9.5 inches with an average depth of 8.6 inches. The design CBR value is 6 percent. The subgrade soils consist primarily sands with some moderately plastic clay also present. The base course material is a soil type base which is suitable for stabilization. We are recommending the existing pavement structure be treated to a depth of 9 inches. We are recommending a pavement depth of 2 inch of S9.5B mix.

The presence of curb and gutter will require that a portion of the stabilized material be removed from the street. Once the street has been stabilized, the material would be cut down to permit placement of the design pavement section. The final section pavement will consist of 7 inches of stabilized base material with 2 inches of asphalt surface.

Nicodemus Mile

The ADT for Nicodemus Mile is 3000. The depth of the pavement structure ranged from 8.0 inches to 12.5 inches with an average depth of 9.6 inches. The design CBR value is 9 percent. The base course material is a soil type base which is suitable for stabilization. The subgrade soils consist of sands with some moderately to

highly plastic clays also present at isolated locations. We are recommending a stabilized base depth of 8.0 inches. We are recommending a pavement depth of 3 inch of S12.5A or S12.5B mix over the stabilized base.

There is some potential for subgrade repairs in the 600 to 700 feet closest to Hunter Hill Road. We anticipate that any subgrade repairs will likely be limited to small areas.

Southern Boulevard

The ADT for Southern Boulevard is 1200. The depth of the pavement structure ranged from 9.0 inches to 11.0 inches with an average depth of 10.0 inches. The design CBR value is 15 percent. The base course material is a soil type base which is suitable for stabilization. We are recommending a stabilized base depth of 8.0 inches. The subgrade soils consist of sands. We are recommending a pavement depth of 2 inch of S9.5A. The asphalt depth can be reduced to 1.5 inches and still meet the structural requirements for the design.

Starling Way

The ADT for Starling Way is 1200. We would note that the traffic volume for the street has been estimated to be 1200 (ADT). This volume appears to be somewhat high based on our observations. There is curb and gutter on both sides of the street. The depth of the pavement structure ranged from 8.25 inches to 9.5 inches with an average depth of 8.8 inches. The design CBR value is 5 percent. The base course material is a crushed aggregate base course. The subgrade soils consist of sands with some moderately to highly plastic clays also present. We are recommending the existing pavement structure be treated to a depth of 9.0 inches. The asphalt depth will be dependent on the actual ADT for the street.

The presence of curb and gutter will require that a portion of the stabilized material be removed from the street. Once the street has been stabilized, the material would be cut down to permit placement of the design pavement section. The final section pavement will be dependent on the actual traffic for the street. We have provided designs in the attachments to this report for different traffic volumes for the street. An ADT of 1200 will result in a stabilized base section of 6 inches with 3 inches of asphalt. An ADT of 500 will result in a stabilized base section of 7 inches with 2 inches of asphalt.

Stokes Street

The ADT for Stokes Street is 2800. The depth of the pavement structure ranged from 10.5 inches to 11.0 inches with an average depth of 10.7 inches. There is curb and gutter on both sides of the street. The design CBR value is 10 percent. We are recommending the pavement structure be treated to a minimum depth of 12 inches. The section included in our evaluation is at the intersection of Raleigh Road and Stokes. There is a considerable amount of medium weight trucks as well as some heavy truck traffic. The subgrade soils will permit stabilization to as much as 12 inches if necessary Design calculations indicate that a minimum pavement section of 2.5 inches of asphalt and 8 inches of stabilized base will be sufficient for the street. However, due to the braking that will occur near the intersection it is our opinion that a heavier pavement section is warranted for this street. The presence of curb and gutter will also result in some of the stabilized material being removed from the street. We are recommending that the street be stabilized to depth of 12 inches followed by removal of the top 3.5 inches of stabilized material. The asphalt section would then be 3.5 inches. We are recommending that the asphalt consist of 2.25 inches of I-19.0 mix and 1.25 inches of S9.5B or S12.5A mix.

Wellington Drive

The ADT for Wellington Drive is 1000. The depth of the pavement structure ranged from 8.0 inches to 12.5 inches with an average depth of 9.6 inches. The design CBR value is 10 percent. The base course material is a crushed aggregate base course. The subgrade soils consist of sands with some moderately to highly plastic clays also present. We are recommending a stabilized base depth of 8.0 inches. We are recommending a pavement depth of 2 inches of S9.5A.

GeoTechnologies appreciates the opportunity to be of service to the Department of Engineering for the City of Rocky Mount, North Carolina. We will be glad to meet with you at your convenience to answer any questions you may have once you have had the opportunity to review the report and the attached data.

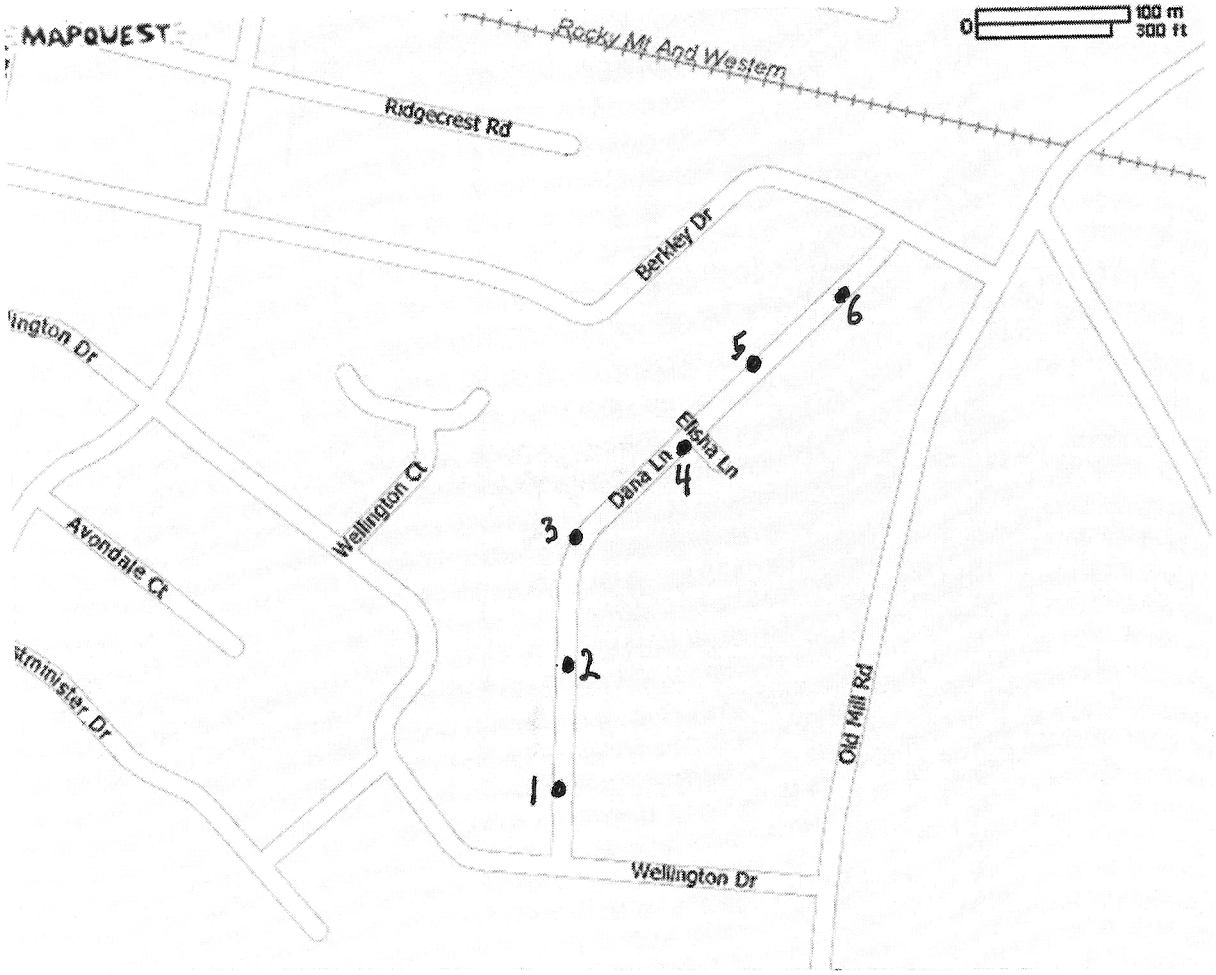
Sincerely,

GeoTechnologies, Inc.

David L. Israel, P.E.
NC Reg. No. 14316

WB-DRH/DLI
Attachments

DANA LANE



Pavement Evaluation **Rocky Mount Streets** **Rocky Mount, North Carolina**	**Dana Lane** **Wellington Drive to Berkley Drive** **Test Locations**	**Project No. 1-07-1096-CA** **Scale: As Shown** **Figure: 1**

TABLE 1

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Dana	1	0 - 1.4	Asphalt Pavement - No Curb & Gutter		
		1.4 - 7.0	Aggregate Base Course	7 - 15	4.5
		7 -	Light Brown, Orange Medium to Fine Sandy CLAY (CL)	15 - 25	3.5
Dana	2	0 - 1.6	Asphalt Pavement - No Curb & Gutter		
		1.6 - 6.75	Aggregate Base Course	7 - 15	7
		6.75 -	Brown Medium to Fine Sandy CLAY (CL)	15 - 25	7
Dana	3	0 - 1.3	Asphalt Pavement - No Curb & Gutter		
		1.3 - 6.5	Aggregate Base Course	7 19	4
		6.5 -	Orange, Tan Silty CLAY (CH)	19 - 30	11
Dana	4	0 2.5	Asphalt Pavement - No Curb & Gutter		
		2.5 - 7.5	Aggregate Base Course	7 - 15	8
		7.5 -	Gray, Orange Clayey Medium to Fine SAND (SC)	15 - 25	8
Dana	5	0 - 1.6	Asphalt Pavement - No Curb & Gutter		
		1.6 - 5.5	Aggregate Base Course	6 12	34
		5.5 -	Light Brown Silty Coarse to Fine SAND (SM)	12 - 18	30
Dana	6	0 - 1.25	Asphalt Pavement - No Curb & Gutter		
		1.25 - 7.5	Aggregate Base Course	8 - 15	10
		7.5 -	Light Brown Medium to Fine Clayey SILT (CL-ML)	15 - 25	6

TABLE 1A

PAVEMENT DESIGN CALCULATIONS

Street: **Dana Lane**

ADT: 400

CBR: 5 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1 105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 421

Truck Factor ($\overline{N}$) $\overline{ADT}\ (0.25x + 0.60y)$
x = % Single Frame Trucks x = 1%
y = % Multiple Frame Trucks N = 3.6 y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 2 199

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1.14)^{SSV}}$

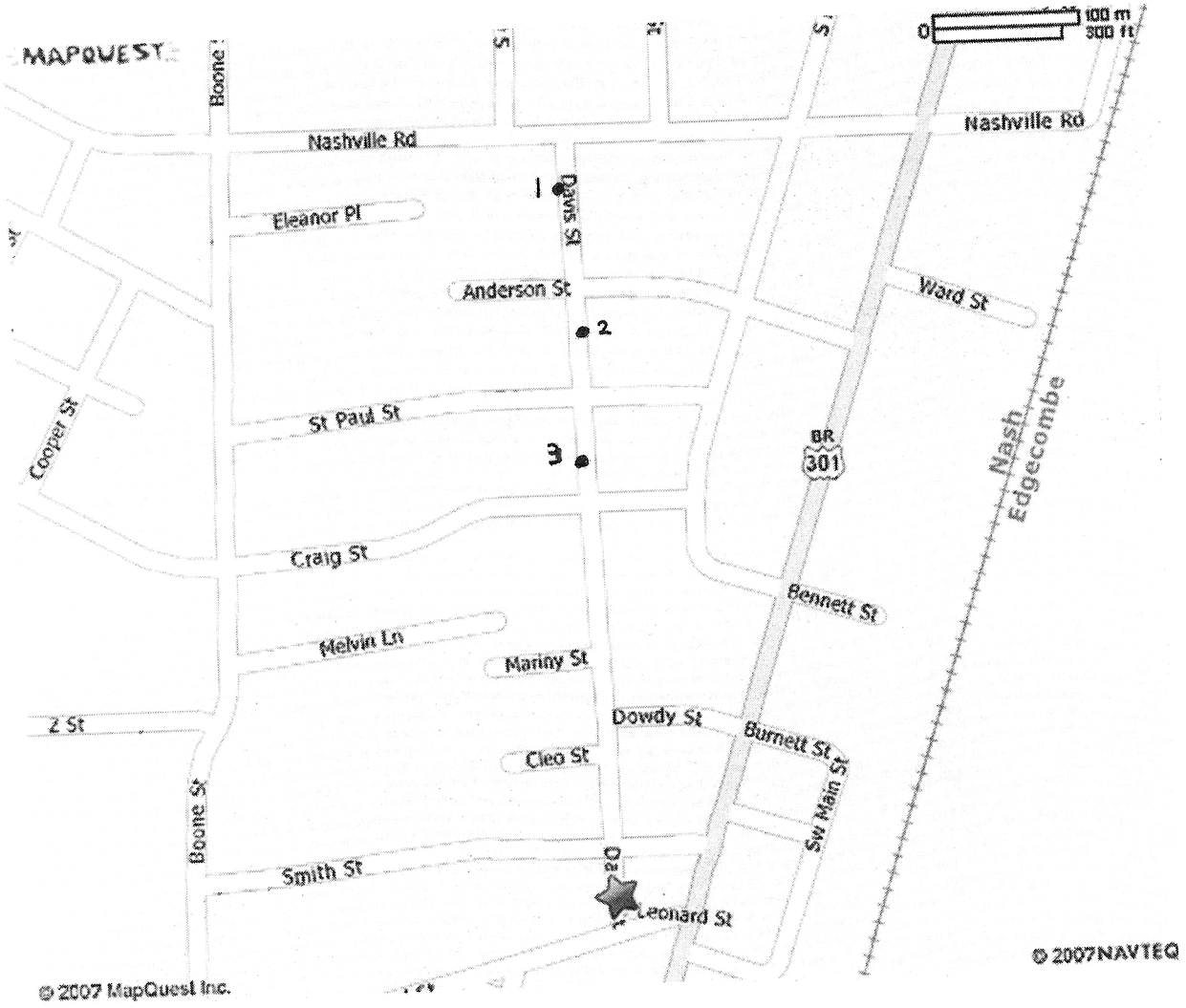
SN = 2.19

Minimum Depth of Existing Structure 5.5"
Maximum Depth of Existing Structure 7.5"
Average Depth of Existing Structure 6.8"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Dana Lane	2 19	2.00	7.00	2.28
Dana Lane	2.19	1.75	7.00	2.17

DAVIS STREET



Pavement Evaluation Rocky Mount Streets Rocky Mount, North Carolina	Davis Street Nashville Road to Craig Street Test Locations	Project No. 1-07-1096-CA Scale: As Shown Figure: 2

TABLE 2

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Davis	1	0 - 3.9	Asphalt Pavement w/ Curb & Gutter		
		3.9 - 9	Soil Type Base Course	9 - 15	6
		9 -	Dark Gray Fine Sandy CLAY (CL)	15 - 25	50
Davis	2	0 - 3.75	Asphalt Pavement w/ Curb & Gutter		
		3.75 - 9	Soil Type Base Course	9 - 15	18
		9 -	Orange Brown Clayey Coarse to Fine SAND (SC)	15 - 25	15
Davis	3	0 - 3.75	Asphalt Pavement w/ Curb & Gutter		
		3.75 - 8	Soil Type Base Course	8 - 15	5
		8 -	Orange Brown Clayey Coarse to Fine SAND (SC)	15 - 25	6

TABLE 2A

PAVEMENT DESIGN CALCULATIONS

Street: **Davis Street**

ADT: 400

CBR: 6 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1 105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 421

Truck Factor ($\overline{N}$)
x = % Single Frame Trucks
y = % Multiple Frame Trucks

$\overline{ADT}$ (0.25x + 0.60y)

N = 3.6

x = 1%
y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 2.620

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

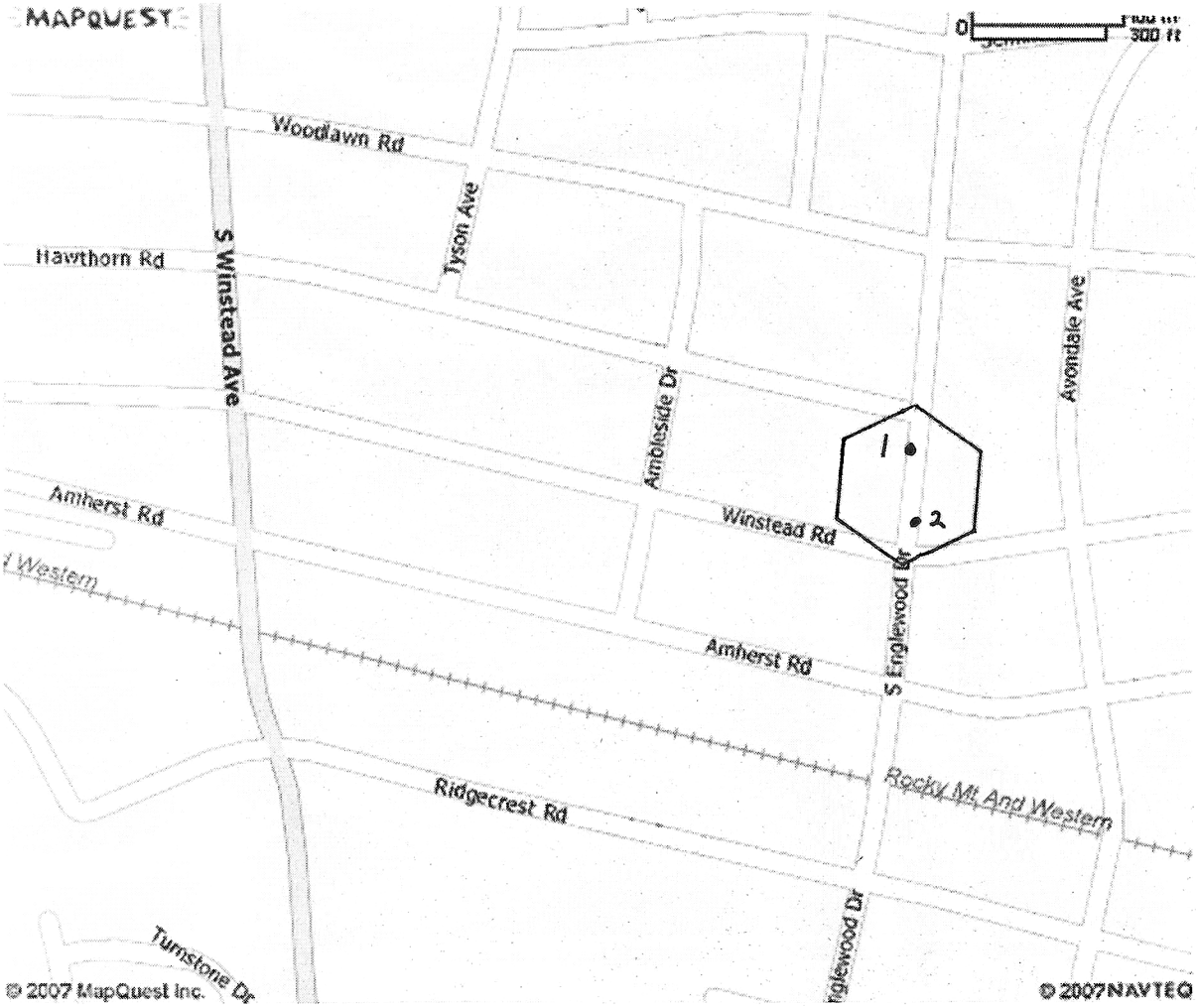
SN = 2.07

Minimum Depth of Existing Structure 8.0"
Maximum Depth of Existing Structure 9.0"
Average Depth of Existing Structure 8.7"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Davis Street	2.07	2.00	7.00	2.28
Davis Street	2.07	1.50	7.00	2.06

SOUTH ENGLEWOOD DRIVE



Pavement Evaluation **Rocky Mount Streets** **Rocky Mount, North Carolina**	**South Englewood Drive** **Hawthorne Road to Winstead Road** **Test Locations**	**Project No. 1-07-1096-CA** **Scale: As Shown** **Figure: 3**

TABLE 3

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Englewood	1	0 - 3	Asphalt Pavement w/ Curb & Gutter		
		3 - 9.5	Aggregate Base Course	10 - 16	2.5
		9.5 -	Gray, Orange Medium to Fine Sandy CLAY (CL)	16 - 25	5
Englewood	2	0 - 2.75	Asphalt Pavement w/ Curb & Gutter		
		2.75 - 9.5	Aggregate Base Course	10 16	25
		9.5 -	Dark Gray, Tan Medium to Fine Sandy CLAY (CL)	16 - 25	18

TABLE 3A

PAVEMENT DESIGN CALCULATIONS

Street: **South Englewood Drive**

ADT. 500

CBR: 5 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1 105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 526

Truck Factor ($\overline{N}$) $\overline{ADT}\ (0.25x + 0.60y)$
x = % Single Frame Trucks x = 1%
y = % Multiple Frame Trucks N = 4.5 y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 2.199

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

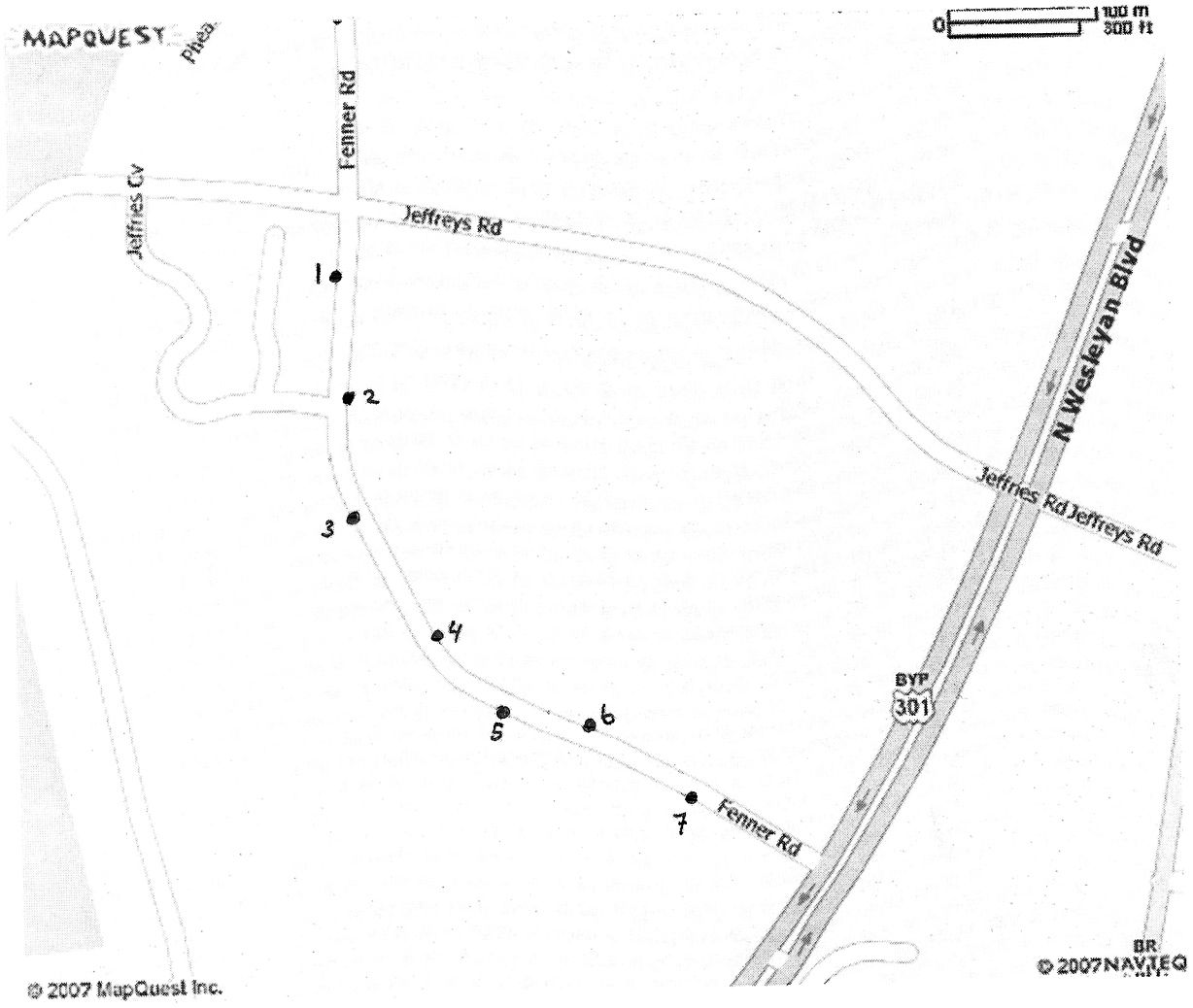
SN = 2.27

Minimum Depth of Existing Structure 9.5"
Maximum Depth of Existing Structure 9.5"
Average Depth of Existing Structure 9.5"

Recommended Section

Street	Required Structural No.	Asphalt (Inches)	Effective Stabilized Base (Inches)	Actual Structural No.
Englewood Drive	2.27	2.00	7.00	2.28

FENNER ROAD



Pavement Evaluation Rocky Mount Streets Rocky Mount, North Carolina	Fenner Road N. Weslyan Boulevard to Jeffrey's Road Test Locations	Project No. 1-07-1096-CA Scale: As Shown Figure: 4

TABLE 4

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Fenner	1	0 - 3.25	Asphalt Pavement w/ Curb & Gutter		
		3.25 - 12	Aggregate Base Course	12 20	5
		12 -	Orange, Gray Medium to Fine Sandy CLAY (CL)	20 - 32	5
Fenner	2	0 - 7.5	Asphalt Pavement · No Curb & Gutter		
		7.5 - 10	Aggregate Base Course	10 - 18	2
		10 -	Gray Orange Medium to Fine Sandy CLAY (CL)	18 - 28	4
Fenner	3	0 4.4	Asphalt Pavement - No Curb & Gutter		
		4.4 - 11.5	Aggregate Base Course	12 - 20	1
		11.5 -	Gray, Tan Medium to Fine Sandy CLAY (CL)	20 - 32	2
Fenner	4	0 - 3.75	Asphalt Pavement - No Curb & Gutter		
		3.75 - 11	Aggregate Base Course	11 - 18	4
		11 -	Gray Clayey Medium to Fine SAND w/ Clay Balls (SC)	18 - 30	3
Fenner	5	0 - 9	Asphalt Pavement - No Curb & Gutter		
		9 - 10.5	Aggregate Base Course	11 - 18	5
		10.5 -	Orange Silty CLAY (CH)	18 - 30	7
Fenner	6	0 - 2.6	Asphalt Pavement - No Curb & Gutter		
		2.6 - 12	Aggregate Base Course	12 - 16	30
		12 -	Gray Silty Medium to Fine SAND (SM)		
Fenner	7	0 - 3.75	Asphalt Pavement - No Curb & Gutter		
		3.75 13	Aggregate Base Course	13 - 20	7
		13 -	Gray Silty Coarse to Fine SAND w/ Clay Balls (SC-SM)	16 - 25	15

TABLE 4A

PAVEMENT DESIGN CALCULATIONS

Street: **Fenner Road**

ADT 1900

CBR 4 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1.486

i 0.02
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 2362

Truck Factor ($\overline{N}$) $\overline{ADT}$ (0.25x + 0.60y)
x = % Single Frame Trucks x = 4%
y = % Multiple Frame Trucks N = 37.8 y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 1.683

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

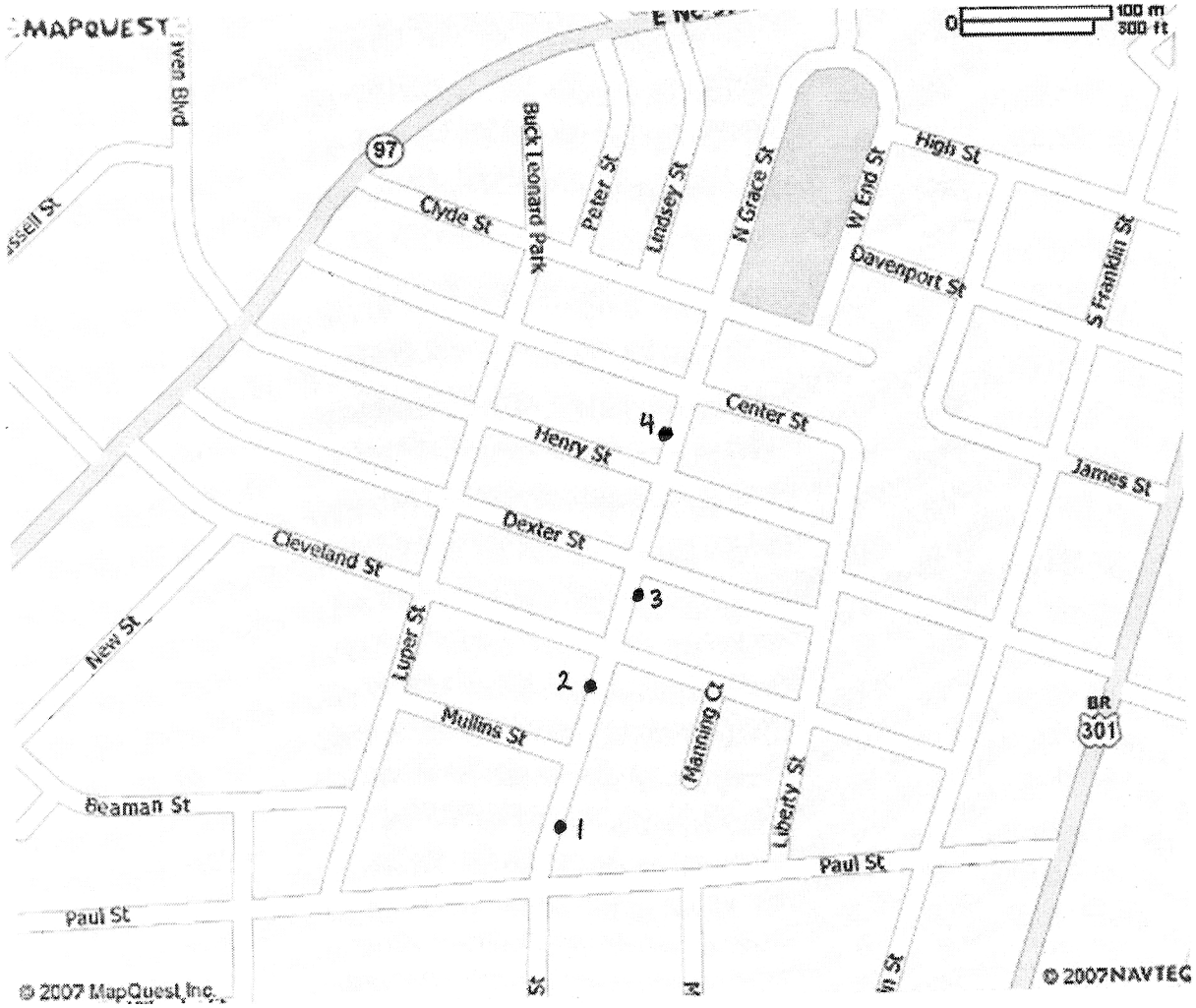
SN = 3.35

Minimum Depth of Existing Structure 10.0"
Maximum Depth of Existing Structure 13.0"
Average Depth of Existing Structure 11.4"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Fenner	3.35	4.00	8.00	3.36
Fenner	3.35	3.00	10.00	3.32

SOUTH GRACE STREET



Pavement Evaluation **Rocky Mount Streets** **Rocky Mount, North Carolina**	**South Grace Street** **Paul Street to Center Street** **Test Locations**	**Project No. 1-07-1096-CA** **Scale: As Shown** **Figure: 5**

TABLE 5

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
South Grace	1	0 - 3.4	Asphalt Pavement w/ Curb & Gutter		
		3.4 - 8.5	Soil Type Base Course - Orange Silty Medium to Fine SAND (SM)	9 - 18	21
		8.5 -	Orange, Gray Medium to Fine Sandy CLAY (CL)	18 - 32	2
South Grace	2	0 - 2.6	Asphalt Pavement w/ Curb & Gutter		
		2.6 - 8.75	Soil Type Base Course - Orange Silty Medium to Fine SAND (SM)	9 - 15	30
		8.75 -	Gray, Tan Clayey Medium to Fine SAND (SC)	15 - 25	10
South Grace	3	0 - 3.75	Asphalt Pavement w/ Curb & Gutter		
		3.75 - 7 75	Soil Type Base Course - Orange Silty Medium to Fine SAND (SM)	8 - 18	28
		7.75 -	Gray, Tan Clayey Medium to Fine SAND (SC)	18 - 30	1
South Grace	4	0 - 3.25	Asphalt Pavement w/ Curb & Gutter		
		3.25 - 9.5	Soil Type Base Course - Orange Silty Medium to Fine SAND (SM)	10 - 16	20
		9.5 -	Orange, Brown Medium to Fine Sandy CLAY (CL)	16 - 22	50

TABLE 5A

PAVEMENT DESIGN CALCULATIONS

Street: **Grace Street**

ADT 2100

CBR: 15 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1 105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 2210

Truck Factor ($\overline{N}$) $\overline{ADT}$ (0.25x + 0.60y)
x = % Single Frame Trucks x = 4%
y = % Multiple Frame Trucks N = 35.4 y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 4.737

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1.14)^{SSV}}$

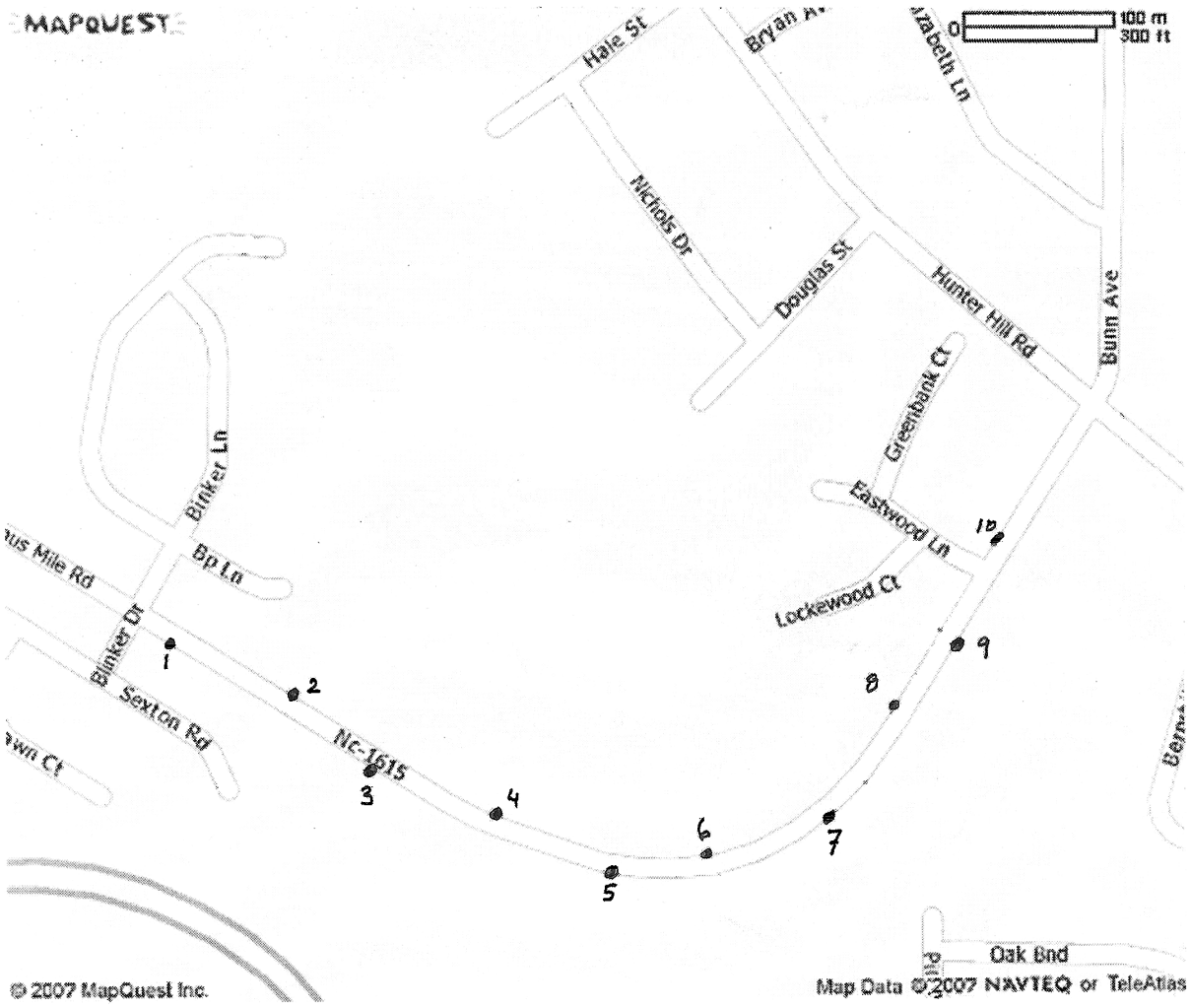
SN = 2.22

Minimum Depth of Existing Structure 7 75"
Maximum Depth of Existing Structure 9.5"
Average Depth of Existing Structure 8.6"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Grace Street	2.22	2.00	7.00	2.28

NICODEMUS MILE



Pavement Evaluation **Rocky Mount Streets** **Rocky Mount, North Carolina**	**Nicodemus Mile** **Brinker Street to Hunter Hill Road** **Test Locations**	**Project No. 1-07-1096-CA** **Scale: As Shown** **Figure: 6**

TABLE 6

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Nicodemus Mile	1	0 - 2.5	Asphalt Pavement - No Curb & Gutter		
		2.5 - 10.5	Soil Type Base Course	11 - 20	10
		10.5 -	Brown Medium to Fine Sandy CLAY (CL)	20 - 30	12
Nicodemus Mile	2	0 - 2.75	Asphalt Pavement - No Curb & Gutter		
		2.75 - 9	Soil Type Base Course	9 - 15	20
		9 -	Gray Silty Medium to Fine SAND (SM)	15 - 18	40
Nicodemus Mile	3	0 - 2.25	Asphalt Pavement - No Curb & Gutter		
		2 25 - 9	Soil Type Base Course	9 - 15	20
		9 -	Light Brown Clayey Medium to Fine SAND (SC)	15 - 25	12
Nicodemus Mile	4	0 - 3	Asphalt Pavement - No Curb & Gutter		
		3 - 8	Soil Type Base Course	8 - 14	10
		8 -	Brown Medium to Fine Sandy CLAY (CL)	14 - 26	12
Nicodemus Mile	5	0 - 2	Asphalt Pavement - No Curb & Gutter		
		2 - 12.5	Soil Type Base Course	13 - 17	11
		12.5 -	Gray Silty Medium to Fine SAND w/ Clay Balls (SM)	17 - 24	30
Nicodemus Mile	6	0 - 3	Asphalt Pavement - No Curb & Gutter		
		3 9	Soil Type Base Course	9 - 15	6
		9 -	Brown Medium to Fine Sandy CLAY (CL)	15 - 220	30
Nicodemus Mile	7	0 - 2.5	Asphalt Pavement - No Curb & Gutter		
		2.5 - 9.5	Soil Type Base Course	10 - 18	12
		9.5 -	Gray, Brown Medium to Fine Sandy CLAY (CL)	18 - 29	14
Nicodemus Mile	8	0 - 2.5	Asphalt Pavement - No Curb & Gutter		
		2.5 - 9.5	Soil Type Base Course	10 - 16	8
		9.5 -	Orange, Gray Coarse to Fine Sandy CLAY (CL)	16 - 21	25
Nicodemus Mile	9	0 - 2.25	Asphalt Pavement - No Curb & Gutter		
		2.25 - 8.5	Soil Type Base Course	9 - 16	4
		8.5 -	Orange, Pink, Tan Medium to Fine Sandy CLAY (CH)	16 - 25	16
Nicodemus Mile	10	0 - 2.5	Asphalt Pavement - No Curb & Gutter		
		2.5 - 8	Soil Type Base Course	8 - 14	10
		8 -	Gray, White, Tan CLAY (CH) (Very Dry)	14 - 20	22

TABLE 6A

PAVEMENT DESIGN CALCULATIONS

Street:	**Nicodemus Mile**	
ADT·	3000	
CBR:	9	Percent
Pavement Design Life.	20	Years
Growth Factor $G = (1 + i)^n$	2.191	
	i	0.04
	n	20

Design Avg. Daily Traffic ($\overline{ADT}$)

$$\frac{ADT + (G \times ADT)}{2} \qquad \overline{ADT} = 4787$$

Truck Factor ($\overline{N}$)
x = % Single Frame Trucks
y = % Multiple Frame Trucks

$\overline{ADT}$ (0.25x + 0.60y)

N = 76.6

x = 4%
y = 1%

Soil Support Value (SSV)

5.32 (log CBR))-1.52

SSV = 3.557

Structural Number (SN)

$$\frac{(2.41\ (\overline{N})^{0.151}}{(1.14)^{SSV}}$$

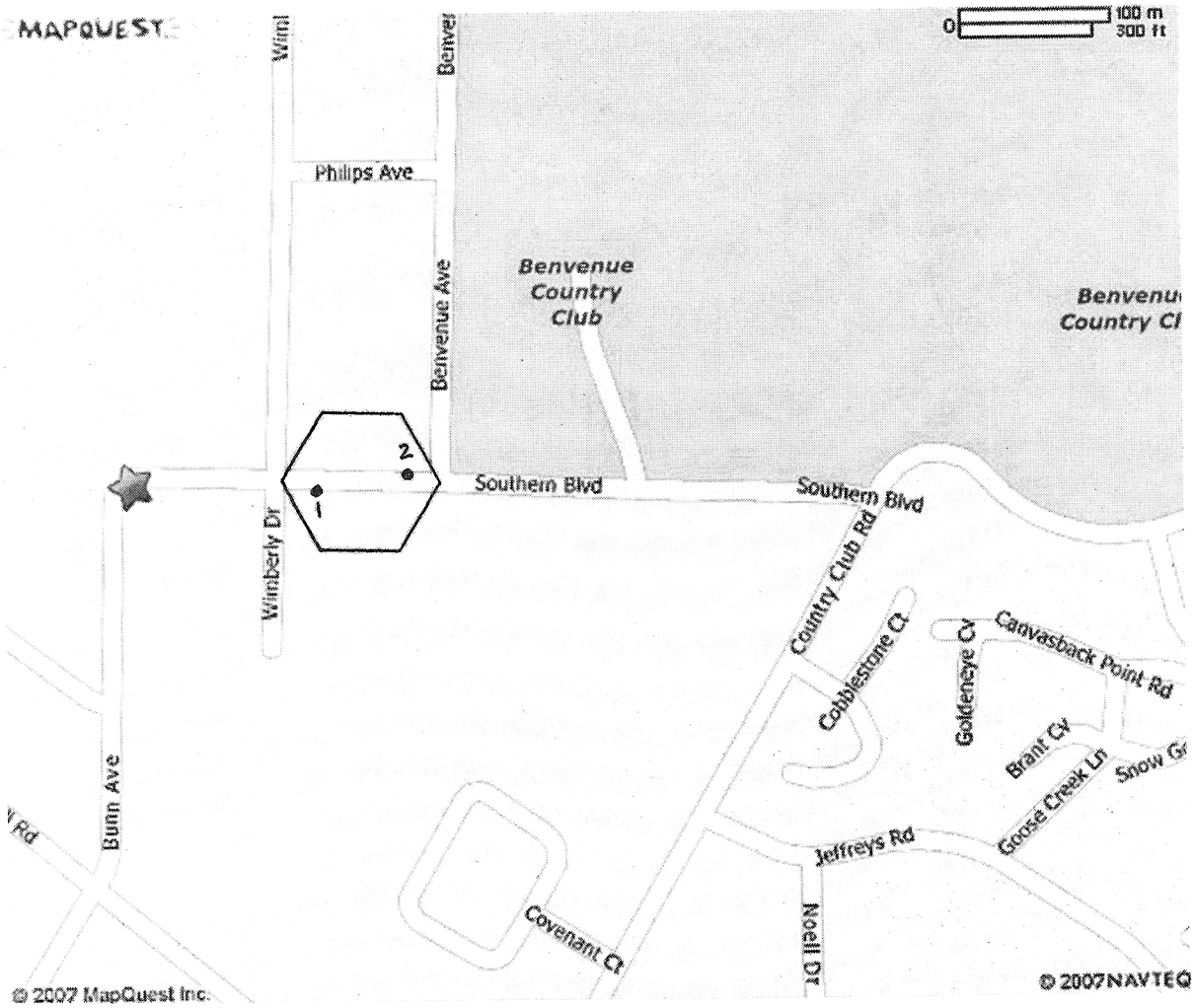
SN = 2.91

Minimum Depth of Existing Structure	8.0"
Maximum Depth of Existing Structure	12.5"
Average Depth of Existing Structure	9.6"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Nicodemus Mile	2.91	3.00	8.00	2.92

SOUTHERN BOULEVARD



Pavement Evaluation **Rocky Mount Streets** **Rocky Mount, North Carolina**	**Southern Boulevard** **Country Club Drive to Wimberly Drive** **Test Locations**	**Project No. 1-07-1096-CA** **Scale: As Shown** **Figure: 7**

TABLE 7

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Southern	1	0 - 1.6	Asphalt Pavement - No Curb & Gutter		
		1.6 11	Soil Type Base Course	11 - 19	50
		11 -	Tan Silty Medium to Fine SAND (SM)		
Southern	2	0 - 2	Asphalt Pavement - No Curb & Gutter		
		2 - 9	Soil Type Base Course	9 - 16	50
		9 -	Tan Silty Medium to Fine SAND (SM)		

TABLE 7A

PAVEMENT DESIGN CALCULATIONS

Street: **Southern Boulevard**

ADT 1200

CBR: 15 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1 105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 1263

Truck Factor ($\overline{N}$)
x = % Single Frame Trucks
y = % Multiple Frame Trucks

$\overline{ADT}$ (0.25x + 0.60y)

N = 10.7

x = 1%
y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 4.737

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

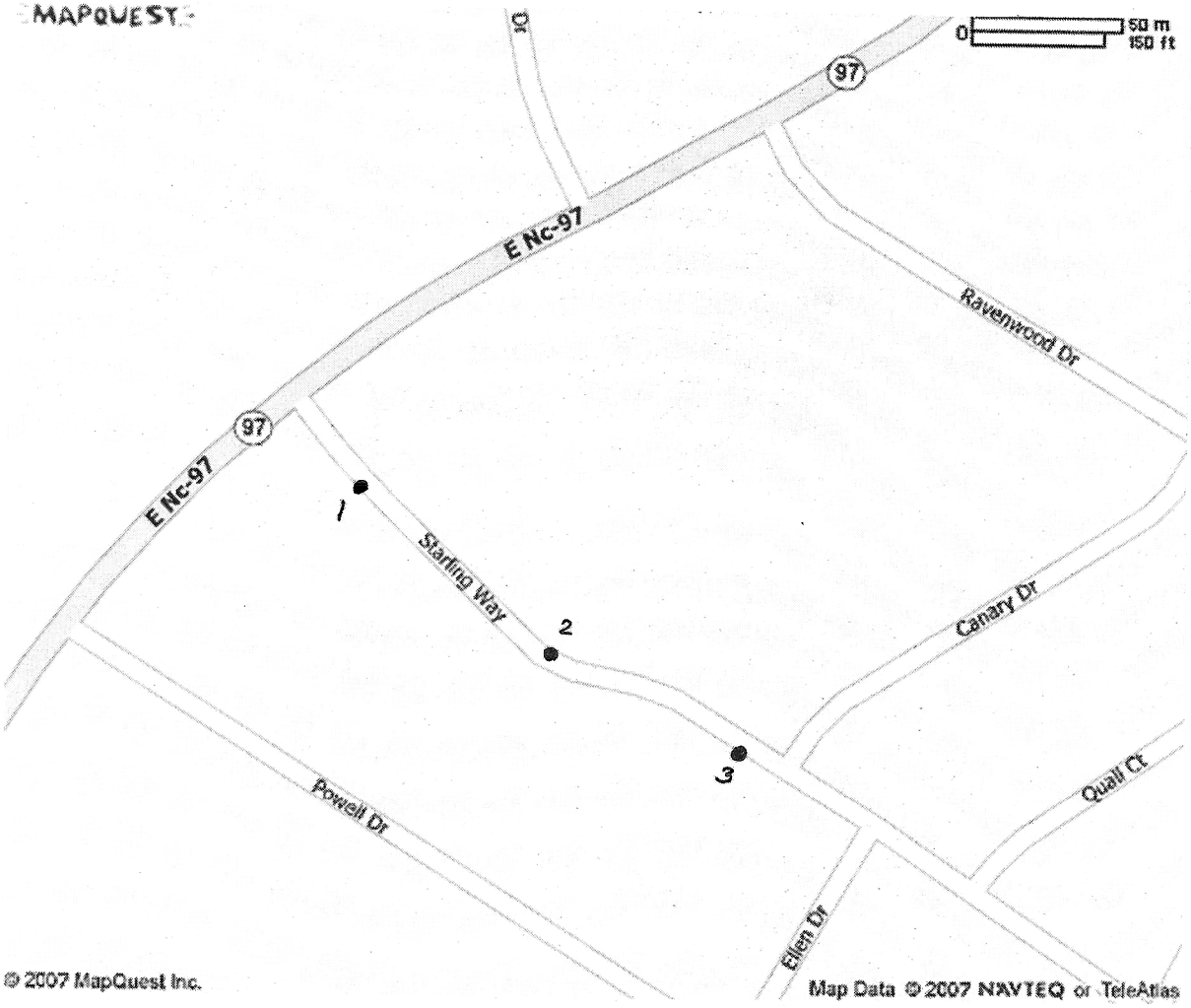
SN = 1.85

Minimum Depth of Existing Structure 9.0"
Maximum Depth of Existing Structure 11.0"
Average Depth of Existing Structure 10.0"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Southern Boulevard	1.85	2.00	8.00	2.48
Southern Boulevard	1.85	1.50	8.00	2.26

STARLING WAY



Pavement Evaluation Rocky Mount Streets Rocky Mount, North Carolina	Starling Way Raleigh Road to Canary Drive Test Locations	Project No. 1-07-1096-CA Scale: As Shown Figure: 8

TABLE 8

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Starling	1	0 - 3	Asphalt Pavement w/ Curb & Gutter		
		3 - 8.75	Aggregate Base Course	9 18	2.5
		8.75 -	Gray Medium to Fine Sandy CLAY (CL)	18 - 30	3
Starling	2	0 - 3.4	Asphalt Pavement w/ Curb & Gutter		
		3.5 - 9.5	Aggregate Base Course	10 - 18	7
		9.5	Olive Brown Medium to Fine Sand CLAY (CL)	18 - 32	7
Starling	3	0 - 2.4	Asphalt Pavement w/ Curb & Gutter		
		2.4 - 8.25	Aggregate Base Course	9 - 18	4
		8.25 -	Gray Medium to Fine Sandy CLAY (CL)	18 - 26	4

TABLE 8A

PAVEMENT DESIGN CALCULATIONS

Street: **Starling Way**

ADT 1200

CBR: 5 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1 105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 1263

Truck Factor ($\overline{N}$) $\overline{ADT}\ (0.25x + 0.60y)$
x = % Single Frame Trucks x = 1%
y = % Multiple Frame Trucks N = 10.7 y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 2.199

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

SN = 2.59

Minimum Depth of Existing Structure 8.25"
Maximum Depth of Existing Structure 9.5"
Average Depth of Existing Structure 8.8"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Starling Way (ADT = 1200)	2.59	3.00	6.00	2.52
Starling Way (ADT - 1000)	2.52	2.50	6.50	2.40
Starling Way (ADT = 750)	2.41	2.25	7.00	2 39
Starling Way (ADT - 500)	2.27	2.00	7.00	2.28

STOKES STREET

Pavement Evaluation Rocky Mount Streets Rocky Mount, North Carolina	Stokes Street Raleigh Street to King Circle Test Locations	Project No. 1-07-1096-CA Scale: As Shown Figure: 9

TABLE 9

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Stokes	1	0 - 2.9	Asphalt Pavement w/ Curb & Gutter		
		2.9 - 10.5	Aggregate Base Course	11 17	45
		10.5 -	Orange Brown Silty Coarse to Fine SAND (SM)	17 · 25	30
Stokes	2	0 - 2.25	Asphalt Pavement w/ Curb & Gutter		
		2.25 11	Aggregate Base Course	11 - 16	50
		11 -	Brown Silty Coarse to Fine SAND (SM)	16 - 24	50

TABLE 9A

PAVEMENT DESIGN CALCULATIONS

Street: **Stokes Street**

ADT 2800

CBR: 10 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1.486

i 0.02
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 3480

Truck Factor ($\overline{N}$) $\overline{ADT}$ (0.25x + 0.60y)
x = % Single Frame Trucks x = 4%
y = % Multiple Frame Trucks N = 55.7 y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 3.800

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

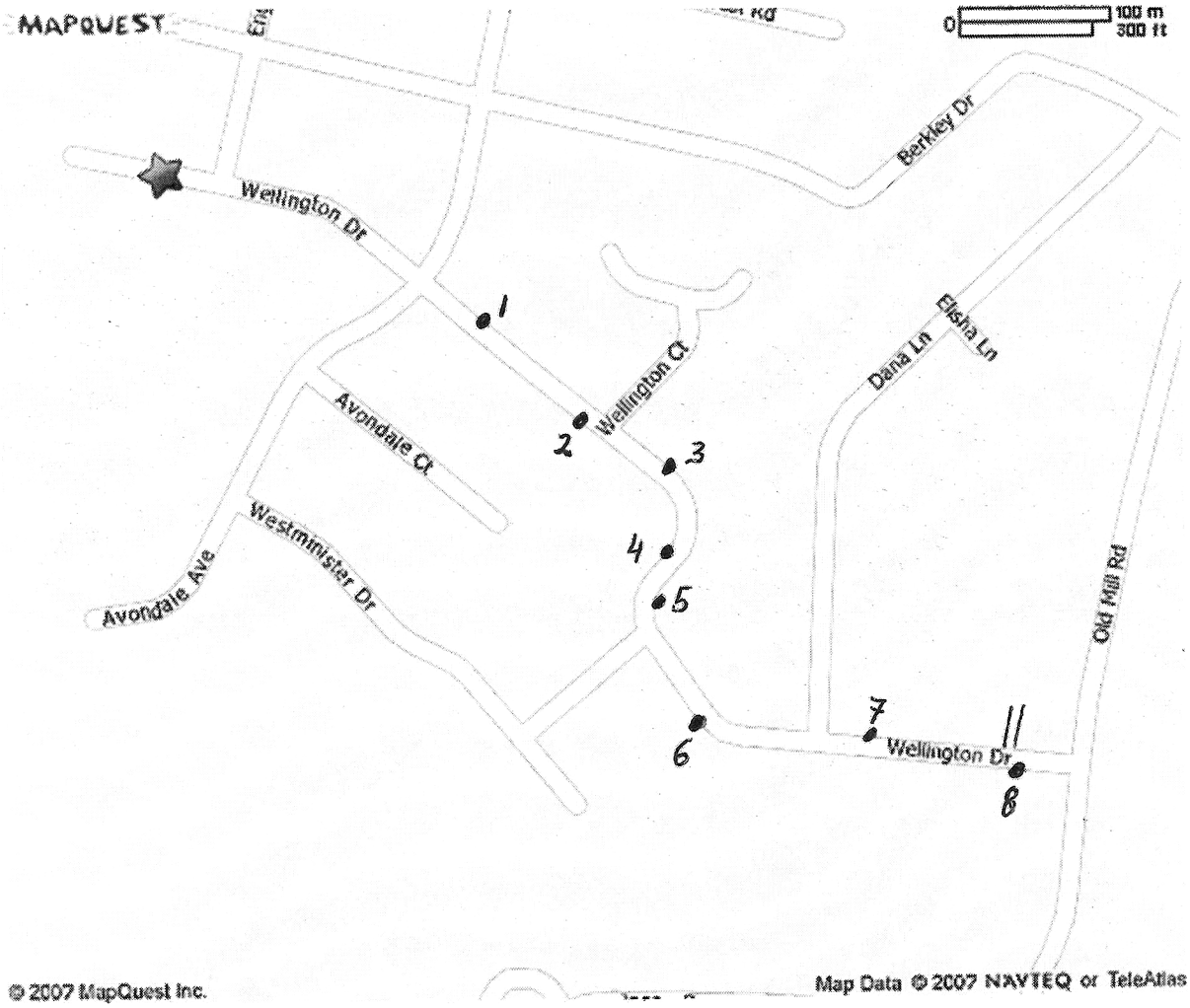
SN = 2.69

Minimum Depth of Existing Structure 10.5"
Maximum Depth of Existing Structure 11.0"
Average Depth of Existing Structure 10.7"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Stokes Street	2.69	2.50	8.00	2.70
Stokes Street	2.69	3.00	8.00	2.92
Stokes Street	2.69	3.50	8.00	3.14

WELLINGTON DRIVE



Pavement Evaluation Rocky Mount Streets Rocky Mount, North Carolina	Wellington Drive Avondale Avenue to Old Mill Road Test Locations	Project No. 1-07-1096-CA Scale: As Shown Figure: 10

TABLE 10

SUMMARY OF TEST BORINGS

Rocky Mount Streets
Rocky Mount, North Carolina
GeoTechnologies Project No. 1-07-1096-CA

Street	Boring	Depth (in.)	Description	Depth (in.)	CBR
Wellington	1	0 - 3.1	Asphalt Pavement - No Curb & Gutter		
		3.1 - 8.5	Aggregate Base Course	9 - 18	1
		8.5 -	Gray Silty CLAY (CH)	18 - 31	3
Wellington	2	0 - 2.9	Asphalt Pavement - No Curb & Gutter		
		2.9 - 7.25	Aggregate Base Course	8 - 20	4
		7.25 -	Orange, Tan Medium to Fine Sandy CLAY (CL)	20 - 31	4
Wellington	3	0 - 4	Asphalt Pavement - No Curb & Gutter		
		4 - 7.25	Aggregate Base Course	8 - 20	5
		7.25 -	Orange, Tan Medium to Fine Sandy CLAY (CL)	20 - 31	9
Wellington	4	0 - 8.6	Asphalt Pavement - No Curb & Gutter		
		8.6	Gray, Light Brown Clayey Coarse to Fine SAND (SC)	9 - 15	10
				15 - 32	4
Wellington	5	0 - 2.5	Asphalt Pavement - No Curb & Gutter		
		2.5 - 6	Aggregate Base Course	6 - 15	6
		6 -	Light Brown Coarse to Fine Sandy CLAY (CL)	15 - 28	10
Wellington	6	0 3.75	Asphalt Pavement - No Curb & Gutter		
		3.75 - 9.5	Aggregate Base Course	10 - 17	4
		9.5 -	Light Brown Coarse to Fine Sandy CLAY (CL)	17 - 29	8
Wellington	7	0 - 5.75	Asphalt Pavement - No Curb & Gutter		
		5.75 - 10	Soil Type Base Course	10 - 16	5
		10 -	Light Brown, Orange Coarse to Fine Sandy CLAY (CL)	16 - 25	10
Wellington	8	0 - 2.75	Asphalt Pavement - No Curb & Gutter		
		2.75 - 9.5	Aggregate Base Course	10 - 15	10
		9.5 -	Gray Silty Medium to Fine SAND (SM)	15 - 21	30

TABLE 10A

PAVEMENT DESIGN CALCULATIONS

Street: **Wellington Drive**

ADT 1000

CBR: 5 Percent

Pavement Design Life: 20 Years

Growth Factor $G = (1 + i)^n$ 1.105

i 0.005
n 20

Design Avg. Daily Traffic ($\overline{ADT}$) $\dfrac{ADT + (G \times ADT)}{2}$ $\overline{ADT}$ = 1052

Truck Factor ($\overline{N}$)
x = % Single Frame Trucks
y = % Multiple Frame Trucks

$\overline{ADT}$ (0.25x + 0.60y)

N = 8.9

x = 1%
y = 1%

Soil Support Value (SSV) 5.32 (log CBR))-1.52

SSV = 2.199

Structural Number (SN) $\dfrac{(2.41\ (\overline{N})^{0.151}}{(1\ 14)^{SSV}}$

SN = 2.52

Minimum Depth of Existing Structure 8.0"
Maximum Depth of Existing Structure 12.5"
Average Depth of Existing Structure 9.6"

Recommended Sections

Street	Required Structural No.	Asphalt (Inches)	Stabilized Base (Inches)	Actual Structural No.
Wellington Drive	2.52	2.00	8.00	2.48